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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/760,961

01/20/2004

Glenn W. Skala

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EXAMINER

RUTHKOSKY, MARK

ART UNIT

PAPER NUMBER

1745

MAIL DATE

DELIVERY MODE

09/07/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/760,961

Applicant(s)

SKALA, GLENN W.

Examiner

Mark Ruthkosky

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Applicant

This office action is in response to applicant's papers submitted 6/20/2007.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2 and 5-8 are rejected under 35 U.S.C. 102(e) as being anticipated by Luken et al. (US 6,534,210.)

The instant claims are to a method of fuel cell start-up for a fuel cell system having a hydrogen source connected to an anode inlet of a fuel cell stack and an oxygen source connected to a cathode inlet of the fuel cell stack, the cathode inlet being connected to a compressor, the fuel cell stack being purged of hydrogen prior to start-up, the method comprising the steps of: introducing hydrogen to the anode inlet of the fuel cell stack; applying an electrical load to the fuel cell stack via the compressor for supplying additional oxygen to the cathode inlet;

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gradually increasing the electrical load to the fuel stack over time while using the increased electrical load to drive the compressor to supply additional oxygen to the cathode inlet.

It is noted that the intended use phrase of the preamble “for a fuel cell system....” does not impart weight on the method as claimed. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. The limitation, “the fuel cell stack being purged of hydrogen prior to start-up” is in the preamble of the claim and is not a method limitation found in the body of the method. This limitation has been considered, but is not given patentable weight. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

Luken et al. (US 6,534,210) teaches a method comprising the steps of introducing hydrogen to the anode inlet of the fuel cell stack; applying an electrical load to the fuel cell stack via the compressor for supplying additional oxygen to the cathode inlet; gradually increasing the electrical load to the fuel stack over time while using the increased electrical load to drive the compressor to supply additional oxygen to the cathode inlet. The fuel cell includes a hydrogen source connected to an anode inlet of a fuel cell stack and an oxygen source connected to a cathode inlet of the fuel cell stack, with the cathode inlet being connected to a compressor (claims 1-19.) A controller opens a valve to flow hydrogen to the anode of the

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fuel cell (col. 7, lines 30-end.) Ambient air is used as the oxidant (claim 6.) A stored amount of oxygen is released from the compressor following the introduction of hydrogen. Further, stored oxygen in the ambient fuel cell is used at the cathode. The reference teaches gradually increasing the electrical load to the fuel stack over time while using the increased electrical load to drive the compressor (col. 7, lines 55-end.) The step of gradually increasing the electrical load to the fuel cell stack may be performed on an open loop basis according to a timed schedule (see at least col. 8, claims 8-19 and col. 3, lines 1-52.) Thus, the claims are anticipated.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-4 and 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Luken et al. (US 6,534,210), as applied to claims 1-2 and 5-8.

Luken et al. (US 6,534,210) teaches a method comprising the steps of introducing hydrogen to the anode inlet of the fuel cell stack; applying an electrical load to the fuel cell stack via the compressor for supplying additional oxygen to the cathode inlet; gradually increasing the electrical load to the fuel stack over time while using the increased electrical load to drive the compressor to supply additional oxygen to the cathode inlet, as previously noted.

With regard to claims 3-4, Luken et al. (US 6,534,210) is silent to the means for opening the hydrogen release valve. The valve is taught to be open by a controller. It would have been obvious to one of ordinary skill in the art at the time the invention was made to open the valve manually or with an electronic solenoid as these means are well known in the art for opening valves. During start-up an operator would be motivated to open the valve based on the teachings of Luken et al. Opening by a manual switch would be obvious to a skilled person in the art to open a valve. Further, as the fuel cell supplies electricity to the fuel cell subsystems upon start-up, it would be obvious to one of ordinary skill in the art to use the electricity taught by Luken to open an electrically powered valve.

With regard to claims 9-10, Luken et al. (US 6,534,210) is does not teach the step of releasing a pressurized gas into a passage upstream of the cathode inlet for forcing oxygen in said passage into said fuel cell stack. Further, the reference does not teach that the pressurized gas is provided from a burp valve provided in an anode exhaust passage of the fuel cell stack. Luken does teach that an oxygen containing oxidant, such as oxygen or air is introduced through the electrode (col. 5, lines 35-60. It would have been obvious to one of ordinary skill in the art at the time the invention was made to releasing a pressurized gas into a passage upstream of the cathode inlet for forcing oxygen in said passage into said fuel cell stack. One of ordinary skill would understand that the ambient air around the electrode would be consumed through the noted reactions and that flowing the air would be necessary to all for the system to function. Releasing a pressurized gas from the compressor or the flow paths of the system would be an obvious choice to flow oxidant to and across the catalytic electrode in order for the fuel cell to function. Provided air pressure from a burp valve in an anode exhaust passage would be an

obvious means from limited flow choices in the fuel cell. The artesian would have found the claimed invention to be obvious in light of the teachings of the references.

Response to Arguments

Applicant's arguments filed 6/20/2007 have been fully considered but they are not persuasive.

Applicant argues, "Luken does not disclose the invention as recited in Claim 1. The Office Action incorrectly asserts that Luken discloses monitoring the electrical output of the primary fuel cell and controlling the electrical load based on the electrical output. Luken, however, teaches that the fuel delivery level to the primary fuel cell is monitored and controlled to reach the required electrical power needed to drive the system." In claim 2, Luken teaches that the fuel cell controller senses a first electrical power generation level from the primary fuel cell stack and increases the oxidant feed rate in response to the power generation.

Applicant argues "In addition, Luken relies on providing auxiliary electrical power to the compressor from the auxiliary fuel cell stack 30 until the primary fuel cell stack 10 reaches a predetermined electrical output, rather than using the primary fuel cell stack to power the compressor from start-up and gradually increasing the load." In response to applicant's argument, the claims are not commensurate in scope with this argument. The prior art reference teaches the method as claimed. While different embodiments taught in the reference may include an auxiliary fuel cell, the instant claims do not include language that prevents this embodiment or method from reading upon the claimed invention. The claims are to a method that includes the steps of introducing hydrogen to the anode inlet of the fuel cell stack; applying

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an electrical load to the fuel cell stack via the compressor for supplying additional oxygen to the cathode inlet; gradually increasing the electrical load to the fuel stack over time while using the increased electrical load to drive the compressor to supply additional oxygen to the cathode inlet. Each of these steps is taught in the prior art. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Examiner Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Ruthkosky whose telephone number is 571-272-1291. The

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examiner can normally be reached on FLEX schedule (generally, Monday-Thursday from 9:00-6:30.) If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached at 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free.)

Mark Ruthkosky

Primary Patent Examiner

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 9/1/07